STORAGE BATTERY AS FRIEND

ITS QUALITIES IN ELECTRIC VEHICLE SERVICE.

It Will Do the Work of It Is Well and Properly Loaded and Fed, but Won't Act Right When Overloaded and Underfed—Charles Blizard on the Subject.

The following article on "The Storage Battery in Electric Vehicle Service" was written for THE SUN by Charles Blizard, second vice-president of the Electric Storage Battery Company:

Too much mystery has been thrown around the storage battery. Its construction and the processes through which it does its work are generally described in technical terms that convey little or no impression to the mind of the average reader or listener other than that a piece of apparatus having so many long and uncommon words connected with it must necessarily be exceedingly complicated and difficult to get along with.

During their early acquaintanceship with the storage battery many electric vehicle owners regard it with some reserve and more fear. As the acquaintance ripens and they discover that their batteries do not require the services of an electrical engineer they lose their fear and their respect increases.

The storage battery is the electric vehicle man's "best friend." It will withstand an amount of ill treatment that would cause man's second "best friend," the dog, to turn and bite. It is even more patient than the friendly dog, it does not even growl or groan under mistreatment. This quality, admirable under some conditions, is perhaps unfortunately a characteristic of the storage battery. If it were capable of giving audible signs of distress under abuse it would without doubt be less frequently imposed upon. If it requires water, just pure water, it is frequently given sulphuric acid; if it is overloaded or underfed.

Even with the mistreatment it silently continues to furnish power to drive its vehicle. Continued abuse, however, eventually affects its staying qualities; while formerly it ran an electric pleasure car eighty to ninety miles without effort it now quits at sixty miles and perhaps a little later at forty miles. By this time its owner has probably learned that it pays to regularly follow the simple but essential rules for the care of his battery, consisting of a few "dos" and a few "don'ts," and by a little careful nursing he restores his battery to its normal condition.

If a man were to treat his watch or his stomach with the same lack of intelligence with which he sometimes handles his battery he would soon be missing his trains or living on milk. The care required by a storage battery is simple and can be given by any one who will regularly follow a few plain non-technical instructions. There is no need for a fool proof battery.

The campaign of education which has been carried on for several years by battery makers and electric vehicle manufacturers has scored, and as a result batteries are nowadays giving an average increase in total life of fully 33 1-3 per cent. before renewals are required.

No electric vehicle owner who believes that his battery is not receiving proper care can readily secure instructions or advice from battery makers, who are constantly seeking opportunities for assisting their customers to obtain the best results from their batteries.

The type of battery most widely used in electric vehicles has, as its essential parts, lead plates immersed in dilute sulphuric acid. This form of battery has been under development for many years and is a thoroughly reliable part of an electric vehicle. This battery stores its energy through the chemical changes produced by the electric current with which it is charged. One effect caused by the charging current is the gradual disintegration of the material of which the plates are composed. This material is loosened from the plates by the charging currents, falls to the bottom of the rubber jar in which the plates and parts are contained and becomes lost.

The shedding of this material from the plates means a loss of capacity in the battery, and when the capacity has become reduced that the battery will not give the vehicle a satisfactory mileage the battery plates must be renewed. It is obvious that if this loss of material could be prevented or lessened, and that if the material retained in the plates could be kept active, the life of the plates would be lengthened and the cost of maintenance be reduced.

This principle has been under quite extensive development for the past few years in the laboratories and testing rooms of the largest storage battery company in this country. The results embodied in the new Ironclad Exide battery, which is just being put on the market commercially. While it has had much service under the eyes of its makers, it is making its first bow to the public at the New York automobile show.

The Exide battery has been named Ironclad because of its strength, durability and long life. It accomplishes a result not before practically obtained in any storage battery, a plate construction which not only restricts the loss of active material, which also maintains the density of the material.

The plate consists of metal top and bottom bars connected by vertical supporting rods. Each rod is surrounded with active material which is pressed and held firmly in place by a special hard rubber tube. The slots give ample opportunity for the dilute acid to reach the active mater al but are so fine that they prevent this material from working out of the tubes, and the useful life of the plate is therefore greatly lengthened. The negative is a modification of the standard Exide negative plate, being somewhat thickened to enable it to withstand not only the increased capacity but the greatly increased life of the new Ironclad positive plate.

The Ironclad Exide battery has a capacity when first put into service 12½ per cent. greater than that obtained from the former standard lead battery. In service this capacity increases about 33 1-3 per cent., and the battery maintains this increased capacity throughout a greater part of its life.

The new battery is capable of giving from two to three times the number of charges and more than three times the total mileage obtainable from the former standard lead battery.

The active material of the Ironclad Exide plate is held within the rubber tubes so there is very little shedding of material. This feature of the Ironclad battery eliminates the necessity of frequent cleaning of the cells, a difficulty which up to this time has never been overcome in the lead battery.

The new Ironclad Exide battery has all the valuable characteristics of the lead battery, and in addition it has these points of merit:

Lasts two to three times the life.

Needs, if ever, requires cleaning.

Gives increased mileage.

Can be installed in rubber jars of the same standard dimensions, and electric users can therefore substitute Exide plates in the present Exide jars when repairing renewals.

Gives greatly improved service to be obtained from the Ironclad Exide battery will augment the rapidly growing popularity of the electric vehicle for pleasure and commercial service.

PUMP DRIVE OF LA FRANCE.

These Trucks Have a Hydraulic System All Their Own.

The American-La France Fire Engine Company's motor fire apparatus has proved so satisfactory that the company has been led to enter the field of commercial motor trucks, believing that their experience in building automobile rolling stock for fire department duty applied to commercial motor truck construction would enable them to produce a commercial truck second to none.

For the last two years therefore the company has been making an exhaustive study of the commercial truck field, and in designing a truck they have endeavored to surmount most of the problems which have contributed largely to the delay in the more general adoption of the motor truck in the place of horse drawn vehicles.

In the judgment of this company one point above all others which has caused great expense and annoyance in the practical operation of the commercial truck is the sliding gear transmission system generally employed in a gasolene driven truck. In hard and constant use, the gears are frequently broken, owing to the constant shifting necessary in the dense traffic through which the truck must move.

Another great drawback is that a certain amount of skill is necessary in order to operate this system successfully. Furthermore, whenever it is not handled with necessary skill and judgment it is bound to develop an inordinately high rate of upkeep.

Another very important objection to the sliding gear system and the differential bevel gear arrangement of the back axle, which is required to allow for the difference in travel of the inside and outside wheels in turning corners, is the power loss involved in the absorption of the power delivered from the power plant to the gears due to internal friction. When first built this loss is only about 25 per cent., which increases, however, very rapidly when the system becomes strained through use, because the alignment of the gears becomes defective and the loss increases to at least 35 per cent. In other words only about 65 per cent. of the initial power developed in the gasolene engine is delivered through the sliding gear system and driving axle to the ground, the company says.

The reason for the continued use of this system in commercial trucks, it is asserted, is largely because most of the commercial truck builders also build pleasure vehicles, and the use of this system, so long identified with pleasure cars of the more luxurious and expensive variety, has created the impression that it is in all respects superior to other systems.

As a matter of fact the actual experience of the commercial truck use has clearly developed the fact that this system is not in all points more advantageous than other systems, and the objection that most frequently has been urged against its use in the pleasure car militates most strongly against it when applied to commercial trucks.

In order to overcome the serious objections to the sliding gear system used in the commercial truck the American-La France Company has devoted the last two years to a painstaking study to devise some system of transmission which will prove more efficient and economical than the one generally employed.

As the result of careful and exhaustive engineering tests they have adopted what is known as the Manly drive or hydraulic transmission, consisting of a five cylinder hydraulic pump connected with two five cylinder hydraulic motors, thereby entirely eliminating the clutch.

The main pump is so arranged that the stroke may be varied, whereas the motor pumps have a constant stroke. By means of a single operating lever directly controlling the stroke of the main pump the vehicle speed may be varied from 0 to 12 miles ahead and from 0 to 3 miles reverse. Not only does the operating lever control the vehicle speed, but by this means the same operation has a braking effect, inasmuch as the vehicle speed cannot be faster than the speed of the pump and motors will allow, the lever as stated above positively controlling the stroke of the pump.

PEERLESS TRUCKS.

A New Development of This Company, Carefully Planned.

Although little information has been given out it has been generally known that the Peerless Motor Car Company will exhibit their motor trucks for the first time at the Madison Square Garden show. For several years the company has been experimenting in this line and its engineering department has carefully followed the development of motor trucks in the European countries, where this class of vehicle has been in general use for a longer period than in America.

These new trucks have been under the scrutiny of the engineering staff and commercial vehicle experts in the process of development and valuable statistics have been compiled as to their efficiency and cost of maintenance. The tests to which they have been subjected have been unusually severe.

Two chasses will be put on the market, one with a carrying capacity of three tons and another of four tons, on which bodies designed to meet the needs of the purchaser may be placed. The motor is of long stroke, with an A. L. A. M. rating of 32 horse-power, is very efficient and economical and will drive either truck with full load at a speed of fifteen fifteen miles an hour. The change speed mechanism is of the sliding gear selective type, with four speeds forward and one reverse. The final drive to the rear wheels is transmitted through jack shaft and side chains. The rear wheels are unusually large, on which are mounted dual tires.

After the close of the commercial vehicle show at the Garden the trucks will be placed on exhibition at the salesroom of the Peerless Motor Car Company of New York, 1769 Broadway.

TRUCKS DO STUNTS.

New Uses for Motor Trucks Develop Every Day.

"Motor vehicles are not used to deliver everything from feathers to carrying passengers and drawing a train. Almost every business is beginning to feel the impulse that can be given to delivery problems by the motor truck, so it is not strange," said Mr. White of the White company, "that you will find nearly every retail line represented in our production of trucks, public service vehicles also. We have been making ambulances for years. Police patrols are a later development. Fire chief wagons, hook and ladder wagons and hose wagons are among some of the latest developments.

"Not to be outdone by the police and ambulances, the undertakers are adopting motors also, and we have produced some very handsome vehicles along this line. We have also one car which is used as an engine on a short railroad in the West, drawing two or three passenger coaches and a freight car.

"We have built special bodies for hauling lumber, furniture, pianos, chewing gum, flour, cement, chemicals, engravings, wholesale meats, coal, water pipes, iron castings, brewing products, bottling works products, wall paper, dyers and cleaners, bakers, newspapers, magazines and so through nearly every branch of trade."

DRIVING OUT THE HORSE.

Motor Vehicles Doing That All the Time—Efficiency Demonstrated.

"Changes bring trouble," says W. J. MacInnes of the Rapid Motor Vehicle Company. "Seldom indeed is it possible to adopt an innovation in the way of labor saving equipment without experiencing some of the hardships of pioneering. Every man who tackles a job of planning for enlargement or increasing efficiency and its attendant demand for new devices appreciates at the outset that he has a problem which is bound to call for trials, comparison of economies and discussions of relative costs and a great many other things before a decision can be satisfactorily reached.

"It is a possibility that the thing will work out right the first time, but it often happens that results are governed by an uneconomical arrangement prompted by a hasty decision or inability to accomplish a certain work on a truly economical basis.

"The progress made in building and using motor trucks has given us a subject which because of its vital effect on business economies presents problems that are worthy the intelligent discussion of every person associated with merchandise transportation.

"The coming into daily use of the motor driven vehicles of various types has brought about a revolution of time honored methods for delivering goods that has caused many merchants and manufacturers to 'sit up and take notice.' When competition is keen the owner of one of these fast going delivery wagons has the advantage, and it is plain to be seen by any one who will take the time to investigate that trade naturally gravitates to the store or factory that can deliver the goods quickest.

"Even with the attendant minor troubles due to inexperienced drivers or to persons who will not use horse sense in operating the same the casual observer cannot fail to see that the commercial motor vehicle is becoming universal and is doing the work for which it is designed.

"Every day brings new recruits to the ranks of capable motor truck drivers, so that the difficulties experienced in the initial stages of the industry are unheard of with the manufacturer who has a refined product.

"Important installations of power delivery wagons are heard of on every side. Where formerly one truck or perhaps two were purchased as experiments, large industrial and mercantile concerns are now placing orders for a uniform equipment of from twelve to fifty trucks. Such orders are naturally going to the older manufacturers whose product has withstood the hard usage and rough handling of the pioneer days.

"The company having in successful operation the largest number of trucks, under the most trying road and climatic conditions, is naturally under the law of the 'survival of the fittest' the greatest beneficiary in times like the present.

"Competent advice cannot be expected from a prejudicial or restricted source. When it is economic advice that is sought (especially is this true of motor trucks) don't expect to get it from a salesman or concern who has lately entered the field. Seek the counsel of some broad gauged fellow whose long experience has ripened into absolute knowledge of existing conditions. There is no sentiment in business. It is the hardest factor that enters into human existence. Progress is only won through friction. Money in business is amassed by the economies through which profits are conserved in the process of carrying on that business.

"Everything mechanical which will contribute to legitimate money making in business becomes a necessity. You may not agree with the writer at this moment that the motor truck is a necessity, but you will awaken to this reality when a considerable falling off in your business is noted because of quicker service by a competing house.

"In a recent demonstration of the utility and economy of rapid motor trucks for a morning newspaper the writer was told if he could deliver two of the longest and largest routes in the same time that it took two one horse wagons to accomplish it an order for ten trucks would be placed immediately. There was little time to arrange the two routes into one, so that the greatest economy would obtain.

"It was necessary to cover same hit and miss, which meant doubling back and retracing a good deal of the territory. The truck used for the demonstration was the same one ton stock model which covered the Glidden tours of 1907-08-09-10, the last considered by all entrants as the hardest endurance run ever attempted. Leaving the newspaper office at 3:27 A. M., an hour later than the regular schedule for the horse drawn vehicles, for the circulation manager was asked to give the most difficult task, in his opinion, that the truck would be expected to withstand, the two routes, consisting of 3,100 papers of twenty-four pages, with 155 actual stops, covering a total distance of 24.8 miles, were delivered in exactly two hours and fifty-five minutes.

"The truck was then utilized for making collections, which meant traversing the route. This was accomplished by 11 A. M. The truck was in the garage and drivers and carriers were in bed by noon. Now, then, what was the expense of this trip? Taking gasolene and oil consumption, depreciation and interest on investment, the actual cost of running the truck was 98 cents, and it was in better shape, after a few minor adjustments and cleaning, than it was before making the trip.

"We purposely leave out the matter of drivers' and carriers' salaries, for to accomplish the delivery of the two routes with a truck would take two men the same as with horses except on Sunday, when four horses and two extra men are used on account of the extra weight of the paper. Now take the expense of the two horses used regularly. Horses that are used in this class of work cost from $250 to $400 and go to pieces, except in remote cases, inside of a year, with the best of care.

"Figuring on a basis of the cost for feeding the two animals, to say nothing of at least one horse held in reserve and the two extras for the Sunday edition, we have a daily expense of $2.26 as against 98 cents, or a saving of $1.28. The saving that can be accomplished in drivers' and carriers' salaries is a matter that is wholly up to the ability of the person in charge of the routing, and truck manufacturers should not be expected to determine this any more than the boilermaker could be expected to place an estimate on the salaries to be paid a fireman or engineer.

"Here we have a concrete example of what a motor truck will accomplish in a service which is recognized as the hardest upon horseflesh. Speed as well as capacity is required, while emergency work is always at hand.

"Gradually the inadequacy of the horse is becoming apparent to all, just as it has been evident in the past to the discerning few, and the argument in favor of the motor truck is being made more forcible by the increasing cost of stabling and feeding horses and the decreasing cost of maintenance of power wagons.

"The motor truck does not get tired in the latter end of a trip as does the horse, dragging its load more sluggishly when the street traffic is at its height.

"It does not fall down on icy pavements or succumb to the intense heat of the summer months. The Rapid truck with ordinary care is always ready to go and to come back as fresh as when it started.

"It is well to paste in your hat the names of motor truck manufacturers on whom you may depend to back up their product, for the time is at hand when every merchant and manufacturer must turn to this modern method of transporting merchandise if he expects to keep pace with human progress."

BOOTH DEMOUNTABLES.

A New Rim With Features of Great Simplicity.

Folks who were looking for removable rims found something altogether new in the line at the show at Madison Square Garden last week. The Booth Demountable rim, presenting features of great simplicity, caught the interest of a number of them. This rim has the properties of even greater simplicity than the usual run of these things.

For one point, there are only three nuts to be loosened, not removed, in order to get the tire off. Three turns with a small brace force the tire off in each of the three sections where the bolts are. Three turns again of each one of these nuts will put the tire back in place. As altogether just eighteen turns are necessary to take off one tire and put another in its place, there is small wonder that Barney Oldfield was able to make a record of four tire changes in 1 minute 50 seconds at Point Breeze track last August, which was the first time he ever used Booth Demountable rims.

That first experience so pleased Oldfield that he has used them ever since on his racing cars. He has achieved the performance of shifting a single tire in 20 seconds.

The great feature claimed for these rims is that it is impossible to mislay any part of the mechanism. There are no bolts to come off and to be lost in dust, mud or snow. The tire changing can be done by a woman in just about as quick time as a man, and in case of a puncture the only necessity is to have an extra ready flated tire to slip on the rim. The equipment of this rim calls for a spare to be furnished for such emergencies.

The fact that these rims have met all the requirements of stability called for in racing is taken by the Booth people as proof sufficient that their product is certainly adequate for the needs of touring. The rim is solid, and there are no splits in it at all.

The booth in which the Booth rim was exhibited at the Garden show was in charge of George L. Derr, second vice-president and sales manager. Mr. Derr was joined later in the week by Martin Mullen, who is president of the company. The Booth Demountable rim is manufactured in Cleveland. It has been made only since last August, when Oldfield took it up at the beginning of its history and tried it out thoroughly as to its make good qualities.

REO LIGHT TRUCKS.

Wagons to Carry 500 and 1,500 Pound Loads Produced.

The Reo power wagon has a capacity of 1,500 pounds with a standard express or stake body. The loading space is seven feet long and four feet wide. The chassis weighs 1,550 pounds and the vehicle complete weighs 1,750 pounds. The maximum speed is fourteen miles an hour, the driver's seat being above the motor with the left hand control. A single cylinder four cycle motor is used, developing 12 horse-power. The gear is planetary, with the usual two forward speeds.

Single solid tires are used in front, 36x2, with 36x2½ in the rear. The tank capacity is seven gallons of gasolene. Reo carburetor and jump spark ignition are used.

There is also a 500 pound wagon with a single cylinder, 12 horse-power motor of a maximum speed of twenty miles an hour.